INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

Interdivisonal Committee on Terminology, Nomenclature and Symbols (ICTNS)

Torino 2007-08-07 and 08

Written reports of other organizations received by the Secretary too late for distribution and discussion under Item 9 of the Agenda

Report of BIPM

General remarks

The BIPM now has 51 Member States of the Metre Convention, and 23 Associate States and Economies of the General Conference. The CIPM MRA has now been signed by the representatives of 67 institutes – from 45 Member States, 20 Associates of the CGPM, and 2 international organizations – and covers a further 117 institutes designated by the signatory bodies.

In 2007 the General Conference of Weights and Measures, CGPM, will take place. The Conference will address many issues, including the BIPM's four year budget and how to deal with the financial arrears of Member States.

Comité Consultatif des Unités (CCU)

- The CCU has met three times since the 22nd CGPM. There have been two main items at these meetings: the preparation of the 8th edition of the SI Brochure, which was published by the BIPM in May 2006 and the ongoing consideration of proposals to revise and improve the International System of Units, the SI, by redefining some of the base units, possibly at the CGPM in 2011with the objective of adapting and improving the SI for the 21st century, in recognition of the major developments in physics during the last 50 years.

The entire text of the SI brochure is available on the BIPM website, http://www.bipm.org/en/si/si_brochure, as a pdf file, thus making all the usual search facilities available.

Two short pocket versions of the SI brochure are also available via the BIPM website.

The CCU now believes, provided the current discrepancy between two alternative ways to measure the Plank constant can be resolved, that
- the kilogram would be redefined based on a fixed value of the Plank constant;
- the ampere redefinition would be based on a fixed value of the charge of the electron;
- the kelvin could be redefined based on a fixed value of the Boltzman constant, k; and
- a redefinition of the mole would be based on a fixed value of the Avogadro constant.

Joint Committee for Guides in Metrology (JCGM)

The JCGM has two working groups. WG1 finished its work on the first supplement of the Guide for the Expression of Uncertainty in Measurements (GUM). WG2 recently finished a complete 3rd reedition of the International Vocabulary of Metrology (VIM). Both documents are expected to be published before the end of the year and will be available freely from the BIPM website and also for purchase from ISO in printed form.

International Cooperation:

ILAC: The links with the International Laboratory Accreditation Corporation are of crucial interest for both organizations. Yearly meetings of representatives of both organizations take place in March at the BIPM. The BIPM is invited to send an observer to the General Assembly of ILAC and ILAC participates at the CGPM.

Organisation International de Métrologie Légale (OIML)

OIML and BIPM also meet yearly in a bilateral way and at a tripartite meeting together with ILAC. The BIPM and OIML have a joint action plan which identifies common actions to promote a single and coherent face of scientific and legal metrology to the outside world. It commits both organizations to publish a joint web portal, has led to a new printed document describing metrology and some shorter, more specialized documents describing metrology in various sectors. OIML and BIPM are mutual participants to the respective General Conferences

International Standardization Organisation (ISO)

The BIPM participates in working groups for the development of international standards when they are relevant to our work or the one from our stakeholders.

Other cooperations:

BIPM participates, or has close relationships with many other organizations, like the International Atomic Energy Agency (IAEA), International Electrotechnical Corporation (IEC), United Nations Industrial Development Organization (UNIDO), International Lighting Commission (CIE) etc.

Other:

The BIPM is working with the World Customs Organization on customs problems on cross-border transportation of metrological samples and discussions on the “Kyoto Declaration”.

The World Meteorological Organization is also interested in becoming a signatory to the CIPM MRA.

Report of ISO TC 12

Report of the activity in ISO/TC 12, August 2005 to July 2007
The project to harmonize International Standards on *Quantities and units* from ISO and IEC is proceeding. The harmonized International Standard ISO/IEC 80000, *Quantities and units* will contain 14 parts. It will replace all the present 13 parts of ISO 31, *Quantities and units*, and the general parts of the IEC 60027, *Quantities and units, and their letter symbols*. 4 of the 14 parts are published, i.e. Part 3: *Space and time*, Part 4: *Mechanics*, Part 5: *Thermodynamics*, and Part 8: *Acoustics*. 3 other parts are approved for the final voting (FDIS), i.e. Part 6: *Electromagnetism*, Part 13: *Information science and technology*, and Part 14: *Telebiometrics related to human physiology*. The remaining parts are still at earlier stages in the development.

As far as the general part is concerned ISO and IEC have both unanimously decided that the decimal sign is either a comma on the line or a point on the line. Earlier only the decimal comma was accepted by ISO and IEC.

The Secretary of ISO/TC 12 has actively participated in the work of CCU of CIPM. The most important question in CCU has been the proposal to redefine 4 of the 7 SI base units, i.e. the kilogram, the ampere, the kelvin, and the mole. For the input from ISO/TC 12 to CCU, see the enclosed memo.

The Secretary of ISO/TC 12 has also actively participated in the work of JCGM and its WG 2 on the VIM. The draft edition 3 of the VIM has been approved by all the 8 member organizations of JCGM and it will soon be published.

The Secretary of ISO/TC 12 has also participated in the work of IUPAC Com. I.1, especially in the work on the Green Book.

There is a close cooperation between ISO/TC 12 and IEC/TC 25.

Anders J Thor
Secretary of ISO/TC 12

Encl.
Memo to CCU

Enclosure to Report of ISO/TC12

To CCU
BIPM
Pavillon de Breteuil
FR-92312 SÈVRES Cedex
France

ISO/TC 12 — Proposed new definitions on the SI base units kilogram, ampere, kelvin, and mole

ISO/TC 12 and IEC/TC 25 have carefully studied the proposals put forward in CCU on the new definitions of the SI base units for mass, kilogram; for electric current, ampere; for thermodynamic temperature, kelvin; and for amount of substance, mole. IEC/TC 25 has especially considered the proposed new definition of the ampere.

There are three main steps in building a system of units, especially the SI:

- The first step is to establish a system of quantities in which a number of independent base quantities are specified, and a set of equations is given to define the derived quantities. For the SI it is the ISQ, *International System of Quantities*, as specified in ISO/IEC 80000, *Quantities and units*, which serves as that system of quantities.

- The second step is to define the base units for the chosen base quantities in the system of quantities. These definitions often fix the values of some fundamental constants. It should be noted that even if the base quantities are regarded as independent of each other, a base unit may well be defined in terms of other base units. For example, in the definition of the metre in the SI, the second is used. However, these definitions must not be circular.

- The third step is the practical realization of the base units and the most important derived units. For the SI units the CIPM has adopted recommendations for the practical realization. It must be emphasized that the realization needs not to reflect the

> definition directly. Instead the definition should be as simple as possible from a principle point of view, whereas the realization should meet practical metrological aspects.

There is no opinion in ISO/TC 12 to make any change in the first step, i.e. in the International System of Quantities ISQ, as far as the International System of Units, SI, is concerned. Nevertheless the Secretariat of ISO/TC 12 now and then receives proposals to adopt electric charge as a base quantity, with the base unit coulomb, rather than electric current as a base quantity with the base unit ampere. No doubt this would reflect the definition of the electric base unit fixing the value of the elementary charge better than the proposed new definition of the ampere. However, in electrical technology the ampere is much more used than the coulomb.

For the second step, i.e. the definition of the base units, the Secretariat of ISO/TC 12 has also received some comments. For the base unit of mass in the SI it has been proposed to use the mass of the atom carbon 12, ^{12}C, at rest, in its ground state, at the thermodynamic temperature 0 K. This proposal is by far much more straight forward than the proposed new, very arbitrary definition fixing the value of the Plank constant. When a new definition of the SI base unit of mass is adopted, the opportunity should be used to adopt a new name without a prefix. At the same time the unit gram should be given the same status as the litre and the tonne as units used with the SI. In practice this means that the gram and the kilogram could be used as today. Nobody cares when they buy milk or wine in litres or centilitres that the litre is not an SI unit. The same will of course be the case with the gram and the kilogram.

For the definition of the ampere I am personally in favour of the present definition fixing the value of the magnetic constant, μ_0, because then the value of the electric constant, ε_0, the value of the impedance in vacuum, Z_0, and the value of the admittance in vacuum, Y_0, are also fixed. However, a majority in ISO/TC 12 is in favour of the proposed new definition fixing the value of the elementary charge, e. Hence this is what I am going to support in the CCU.

For the proposed new definition of the base unit of thermodynamic temperature, the kelvin, there are no comments from ISO/TC 12. We support the fixing of the value the Boltzmann constant.

Finally, for the definition of the base unit of amount of substance, the Secretariat of ISO/TC 12 has received two principle comments. The first is that the base unit of amount of substance should be defined as a specified number of entities, rather than using carbon 12, ^{12}C, i.e. fixing the value of the Avogadro constant. ISO/TC 12 is in favour of this proposal. The second proposal is to adopt the present kilomole as the SI base unit of amount of substance. This is a radical proposal to change the SI. Nevertheless, this definition will match the definition of the base unit of mass better than the present definition. It is also proposed to give the kilomole a new name without a prefix (compare the kilogram). Then the mole should be adopted as a unit used with the SI, like litre, tonne, and gram. If the mole is no longer an SI unit, the objection to use the adjective "molar" for "divided by amount of substance" in quantity names is no more valid.

Yours sincerely
SIS, Swedish Standards Institute
Secretariat of ISO/TC 12

Anders J Thor
Secretary of ISO/TC 12

Report of IUPHAR

UPDATE - NC-IUPHAR, 2007

M SPEDDING, Chair : NC-IUPHAR

A.J. HARMAR, chair : database committee

July 2007

Introduction

The last year has seen major progress for NC-IUPHAR. The committee has been renewed at the Beijing congress and two plenary meetings have taken place, with an informal meeting at Beijing. The database is now up and running so all recommendations can be visited on iuphar-db.org, a must for all pharmacological scientists, students and journals.
An alliance has been made with the British Pharmacological Society (BPS), including funding (40,000£ pa for 3 years). ASPET has continued to support NC-IUPHAR with aid for publication via Pharmacological Reviews. Funding has been obtained from GSK (60,000$) and Servier (25,000€).

Science.
We are proceeding rapidly towards our goal of classifying all the receptors which are encoded in the human genome, with their functionally important polymorphisms. Furthermore, we are issuing guidelines to how to study these proteins, the site of action of ~50% of the world's drugs and poisons.
In December 2005, thanks to the efforts of Bill Catterall, NC-IUPHAR published the complete classification of voltage-gated ion channels as a full supplement of Pharmacological Reviews (11 articles).
A year later in December 2006, thanks to the efforts of Vincent Laudet, NC-IUPHAR published the complete classification of nuclear receptors as a full supplement of Pharmacological Reviews (10 articles). A CD of the classification was made available to all the delegates at the Beijing IUPHAR meeting.
These classifications are unique in that they are definitive and there are hardly any more proteins to be discovered in their respective fields.
The GPCR database is almost complete, with all the associated classifications, organised by A. Harmar. The evolving pharmacology committee, chaired by A. Davenport, has curated the entire field of new receptors and of receptor : ligand pairings; publishing their recommendations – for example, the ghrelin classification published in Pharmacological Reviews by A. Davenport, has been widely cited.

A receptor list for ligand-gated ion channels is near completion and this, up till now resistant, area to classification, is now close to being classified.
Receptor polymorphisms. This area is of critical importance for modern pharmacology. Jean-Philippe Pin has organised a group, which published criteria for receptor dimers in Pharmacological Reviews. IUPHAR has also contributed to major articles on functional selectivity (e.g. review in JPET).

Database.
The database is hosted in the University of Edinburgh, where curation and development of the database takes place in Prof. Antony Harmar's laboratory using servers in the Centre for Bioinformatics (Director: Prof. Igor Goryanin). IUPHAR supports the salaries of two Research Assistants in Edinburgh (a postdoctoral database developer and a postgraduate data curator). Tony Harmar has been a member of NC-IUPHAR since 1998 and chairs its database subcommittee.
Having two full time people working on the database has made a major difference to output as we have now the capacity to supply filled templates to subcommittees that allows the throughput to be much higher with completion of the GPCR database approaching. The Edinburgh Bioinformatics Institute has agreed to supply background support for the database. The next projects are to incorporate the voltage-gated ion channel database (well underway) and the nuclear receptor database.

Background.
NC-IUPHAR, the International Union of Basic and Clinical Pharmacology Committee on Receptor Nomenclature and Drug Classification, consists of 17 international experts in receptor and ion channel research. They oversee the work of over 60 subcommittees and over 300 contributors from academia and industry specialising in receptor and ion channel nomenclature.
NC-IUPHAR has the following missions:
- *issuing guidelines for receptor and ion channel classification,*
- *classifying the major receptor and ion channel systems,*
- *facilitating the interface between the discovery of new sequences from the Human Genome Project and the designation of the derived proteins as functional receptors and ion channels,*
- *setting up a website with access to data on all known receptor systems, freely available to all scientists.*

To ensure consistency of nomenclature of genes, drugs and receptor-related enzymes, we maintain close links with the HUGO Gene Nomenclature Committee (HGNC), the International Union of Pure and Applied Chemistry (IUPAC) and the International Union of Biochemistry and Molecular Biology (IUBMB). HGNC sends representatives to NC-IUPHAR meetings (Dr Matt

Wright) and we are in the process of producing joint gene : receptor classifications of all the human receptor systems.

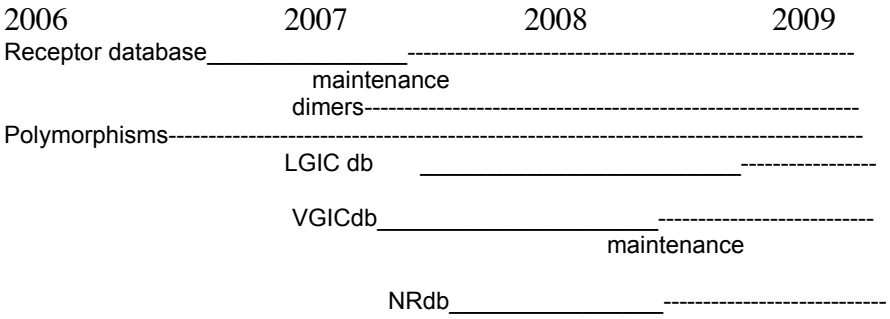
Future progress:

1. **Nuclear receptors.** By the end of 2008 we also expect to complete the database on the 48 nuclear hormone receptors. Dr. Vincent Laudet (Ecole Normale Supérieure, Lyon), who has overseen the work on nuclear hormone receptors, edited a compendium on nuclear hormone receptors which was distributed to all participants at the 15th World Congress of Pharmacology (IUPHAR 2006) in Beijing, was published in *Pharmacological Reviews* at the end of 2006 [6] and will form the basis of the database. We need to adapt the database to this compendium and then revalidate the templates and articles with the authors (6 months database scientist, 6 months database curator.)
2. **Voltage–gated ion channels.** Dr. William Catterall (University of Washington) and Dr. George Gutman (University of California, Irvine) are overseeing the work on voltage-gated ion channels. A compendium they edited was published in the December 2005 issue of *Pharmacological Reviews* and will be the starting point for an ion channels database, for which we have received already five chapters. (6 months database person, 9 months database curator.)
3. **Ligand-gated ion channels.** The combinatorial nature of these receptors has always been daunting for classification, although NC-IUPHAR has issued guidelines in this area. We have made significant progress in the last two meetings and will organise a meeting with the subcommittee chairs in 2007 to issue a receptor list and a new classification, followed by the database in 2008/start 2009 (depending on resources - 6 Months database person, 9 months database curators).
4. **Receptor polymorphisms and functional selectivity.** This area is of key interest and will be expanded to other facets of receptor diversity: by alternative splicing, mRNA editing, and through polymorphic variation. The GSK receptor curator Steve Foord helps in this aspect with the curation of publicly available data.
5. **Complete list for receptors genes and proteins.** A joint initiative between HGNC and NC-IUPHAR is proposed to issue a list, and include in our respective databases a fully curated list of all the receptor genes in the human genome, and their proteins (2010).

6. Receptors linked to kinases. This area has been closed to IUPHAR, for lack of resources, although we did appoint eminent scientists to NC-IUPHAR – e.g. Axel Ullrich. We now have available to us a receptor list, which needs to be validated. We can go forward at two levels: 1) validation of the receptor list by selected scientists (1 years work of committee; 3 meetings); 2) receptor list plus pharmacology – this more ambitious but useful plan would need a working

group of ten scientists, meeting over two years, plus database. This approach HAS worked for nuclear receptors and voltage-gated ion channels so it could be applied here (support 9 months database person, 18 months database curator, from 2008).

Database Planning



Receptors linked to kinases is not currently planned, as it depends on support.

Partnership between NC-IUPHAR and the BPS

It is particularly fitting to establish such a partnership between NC-IUPHAR and the BPS in the anniversary year for the BPS. The partnership will be mainly for the database but will also extend to several more initiatives. The IUPHAR receptor database and the BPS Guide to Receptors and Channels (GRAC) are very different but very complementary products. Respectively, they represent a detailed online resource and a compact desktop reference of key information on drug targets. However, similar working methods are used to obtain information from a network of international experts, which will be combined. The Edinburgh Office have experience in researching the literature, where required, liaison with contributors and in distilling information from the database into succinct summaries as used in GRAC and in our compendia published in *Pharmacological Reviews* (for an example page, see appendix).

Interactions between NC-IUPHAR and other Societies

ASPET has been a continual supporter and has made major contributions to IUPHAR's activities over many years.

Financial position

Unlike many similar international bodies, IUPHAR does not receive revenue from journal publishing. Several commercial organisations wish to take on our articles, but this is not the policy of open access necessary for NC-IUPHAR. IUPHAR's budget is obtained largely from subscriptions from member organisations. NC-IUPHAR has in the past been reasonably successful in raising money from pharmaceutical companies, and anticipates, but cannot guarantee,

that this will continue at the present level (typically totalling $60 – 100,000 per year). A grant from UNESCO (through the ICSU Grants Programme; €100,000) was obtained in 2005, and Incyte supported the database and meetings 2001-2005.

Appendix 1: a sample page from the IUPHAR compendium of Nuclear Receptors

Constitutive Androstane Receptor (CAR)

Receptor nomenclature	NR1I3
Receptor code	4.1.1:XE:1:I3
Other names	
Molecular information	Hs: 348aa, Q14994, chr. 1q23.3[1] Rn: 358aa, Q9QUS1, chr. 13q24 Mm: 358aa, Q3V008, chr. 1 H3[2]
DNA binding	
Structure	Heterodimer, RXR partner
HRE core sequence	AGGTCA (DR4, DR5, Palindrome)[1,3-5]
Partners	
Agonists	TCPOBOP* (20 nM), meclizine (25 nM), CITCO (49 nM), pregnanedione (670 nM) [EC_{50}][4,6-8]
Antagonists	Androstanol (400 nM), androstenol (400 nM), meclizine (69 nM), clotrimazole (690 nM) [IC_{50}][6,8,9]
Coactivator	NCOA1, PPARBP, PGC-1[9-11]
Corepressor	
Biologically important isoforms	CAR1 {Mm} Main isoform in mouse[2]. CAR2 {Mm} Truncated form, lacking C terminal sequence[2].
Tissue distribution	Liver, low levels in the kidney, intestine, stomach {Hs, Mm} [Northern blot, Q-PCR, immunohistology][1,2,12,13]
Functional assay	Liver hepatomegaly after PB or TCPOBOP treatment {Mm}[14,15]. Drug clearance: recovery from zoxazolamine-induced paralysis {Mm}[15]. Acetaminophen liver toxicity {Mm}[15].
Main target genes	Activated: cytochrome P450 genes {Hs, Mm, Rn}[16], Mdm2 {Mm}[14], MRP2 {Mm}[5] Repressed:
Mutant phenotype	Impaired drug metabolism induced by specific xenobiotics. Resistance to chronic xenobiotic stress induced liver tumorigenesis {Mm} [knockout][14,15]. Responsive to human CAR ligands {Mm} [human CAR transgenic with CAR knockout background][17].
Human disease	

Radioligands are denoted by *

1. Baes M, Gulick T, Choi HS, Martinoli MG, Simha D and Moore DD (1994) A new orphan member of the nuclear hormone receptor superfamily that interacts with subset of retinoic acid response elements. *Mol Cell Biol* **14:**1544-1552.
2. Choi HS, Chung M, Tzameli I, Simha D, Lee YK, Seol W and Moore DD (1997) Differential transactivation by two isoforms of the orphan nuclear hormone receptor CAR. *J Biol Chem* **272:**23565-23571.
3. Frank C, Gonzalez MM, Oinonen C, Dunlop TW and Carlberg C (2003) Characterization of DNA complexes formed by the nuclear receptor constitutive androstane receptor. *J Biol Chem* **278:**43299-43310.
4. Tzameli I, Pissios P, Schuetz EG Moore DD (2000) The xenobiotic compound 1,4-bis[2-(3,5-dichloropyridyloxy)]benzene is an agonist ligand for the nuclear receptor CAR. *Mol Cell Biol* **20:**2951-2958.
5. Kast HR, Goodwin B, Tarr PT, Jones SA, Anisfeld AM, Stoltz CM, Tontonoz P, Kliewer S, Willson TM and Edwards PA (2002) Regulation of multidrug resistance-associated protein 2 (ABCC2) by the nuclear receptors pregnane X receptor, farnesoid X-activated receptor, and constitutive androstane receptor. *J Biol Chem* **277:**2908-2915.
6. Huang W, Zhang J, Wei P, Schrader WT and Moore DD (2004) Meclizine is an agonist ligand for mouse constitutive androstane receptor (CAR) and an inverse agonist for human CAR. *Mol Endocrinol* **18:**2402-2408.
7. Maglich JM, Parks DJ, Moore LB, Collins JL, Goodwin B, Billin AN, Stoltz CA, Kliewer SA, Lambert MH, Willson TM and Moore JT (2003) Identification of a novel human constitutive androstane receptor (CAR) agonist and its use in the identification of CAR target genes. *J Biol Chem* **278:**17277-17283.
8. Moore LB, Parks DJ, Jones SA, Bledsoe RK, Consler TG, Stimmel JB, Goodwin B, Liddle C, Blanchard SG, Willson TM, Collins JL and Kliewer SA (2000) Orphan nuclear receptors constitutive androstane receptor and pregnane X receptor share xenobiotic and steroid ligands. *J Biol Chem* **275:**15122-15127.
9. Forman BM, Tzameli I, Choi HS, Chen J, Simha D, Seol W, Evans RM and Moore DD (1998) Androstane metabolites bind to and deactivate the nuclear receptor CAR-beta. *Nature* **395:**612-615.
10. Jia Y, Guo GL, Surapureddi S, Sarkar J, Qi C, Guo D, Xia J, Kashireddi P, Yu S, Cho YW, Rao MS, Kemper B, Ge K, Gonzalez FJ and Reddy JK (2005) Transcription coactivator peroxisome proliferator-activated receptor-binding protein/mediator 1 deficiency abrogates acetaminophen hepatotoxicity. *Proc Natl Acad Sci U S A* **102:**12531-12536.
11. Shiraki T, Sakai N, Kanaya E and Jingami H (2003) Activation of orphan nuclear constitutive androstane receptor requires subnuclear targeting by peroxisome proliferator-activated receptor gamma coactivator-1 alpha. A possible link between xenobiotic response and nutritional state. *J Biol Chem* **278:**11344-11350.
12. Nishimura M, Naito S and Yokoi T (2004)Tissue-specific mRNA expression profiles of human nuclear receptor subfamilies. *Drug Metab Pharmacokinet* **19:**135-149.
13. Wei P, Zhang J, Dowhan DH, Han Y and Moore DD (2002) Specific and overlapping functions of the nuclear hormone receptors CAR and PXR in xenobiotic response. *Pharmacogenomics J* **2:**117-126.
14. Huang W, Zhang J, Washington M, Liu J, Parant JM, Lozano G and Moore DD (2005) Xenobiotic stress induces hepatomegaly and liver tumors via the nuclear receptor constitutive androstane receptor. *Mol Endocrinol* **19:**1646-1653.
15. Wei P, Zhang J, Egan-Hafley M, Liang S and Moore DD (2000) The nuclear receptor CAR mediates specific xenobiotic induction of drug metabolism. *Nature* **407:**920-923.
16. Honkakoski P, Sueyoshi T and Negishi M (2003) Drug-activated nuclear receptors CAR and PXR. *Ann Med* **35:**172-182.
17. Zhang J, Huang W, Chua SS, Wei P and Moore DD (2002) Modulation of acetaminophen-induced hepatotoxicity by the xenobiotic receptor CAR. *Science* **298:**422-424, 2002

Report of IUPAP

2007 REPORT TO ICTNS[1] BY THE REPRESENTATIVE OF THE INTERNATIONAL UNION OF PURE & APPLIED PHYSICS (IUPAP)

IUPAP and the ICTNS

Concerning questions of terminology, nomenclature and symbols and the work of the ICTNS, it is the IUPAP Commission C2 SUNAMCO which acts as a link with pure and applied physicists in IUPAP and elsewhere.

The IUPAP Commission C2: Symbols, Units, Nomenclature, Atomic Masses & Fundamental Constants (SUNAMCO) [http://www.iupap.org/commissions/c2-mandate.html] has namely amongst its mandates to promote the exchange of information and views among the members of the international scientific community in the general field of Fundamental Constants including:

(a) physical measurements
(b) pure and applied metrology
(c) nomenclature and symbols for physical quantities and units;
(d) encouragement of work contributing towards improved recommended values of atomic masses and fundamental physical constants and facilitation of their adoption.

Chair: Leslie Pendrill (Sweden)
Co-chair: Christian Bordé (France)
Secretary: Peter Mohr (USA)

Members:

AYSTO, JUHA (Finland); DILLING, JENS (Canada); FLOWERS, JEFFREY (UK); JORNADA, JOCO (Brazil); KARSHENBOIM, SAVELY (Russia); MAURING, KOIT (Estonia); NIE, YU-XIN (China); ONAE, ATSUSHI (Japan); WALLARD, ANDREW (BIPM); WOEGER, WOLFGANG (Germany)

Associate Members:

DEAVER, David (USA); DMITRIYEV, Alexander (Russia); BLINC, Robert (Slovenia)

[1] IUPAC Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS)

IUPAP SUNAMCO Report to ICTNS

Update on status of 'color' books

The IUPAP 'Red' book SUNAMCO 87-1 "Symbols, Units, Nomenclature and Fundamental Constants in Physics, is by all accounts still popular 20 years after publication of the latest edition. Recently the SUNAMCO Commission has put on-line[2] an electronic version of the IUPAP 'Red' book, together with a number of links to relevant modern and complementary information.

A number of other organisations such as IUPAC are also quite active in producing a number of guidance documents and books, such as the latter's 'green' and 'orange' books. Some of these, for instance the 'orange' book[3] "Compendium on Analytical Nomenclature", have certain sections which directly overlap the contents of the IUPAP 'Red' book, such as accounts of the SI and tables of values of the fundamental constants and are published on the Internet.

It is natural therefore that some amount of coordination would be in order in continued work of SUNAMCO on a new edition of the red book. SUNAMCO has already suggested and has had a positive response from IUPAC (both ICTNS and the Analytical Chemistry Division).

Joint Committee for Guides in Metrology (JCGM)

During the reporting period, IUPAP has been active in the Joint Committee for Guides in Metrology (JCGM) and some Members of C2 SUNAMCO Commission have represented IUPAP in the JCGM and its working groups (producing guides on Vocabulary in Metrology and Measurement Uncertainty).

Proposed redefinitions of some SI units

Changes to the International System of Units (SI) that are being considered internationally have lead IUPAP formulating its own recommendation about the possible redefinition of the kilogram. After continued, lively discussion within SUNAMCO, a recommendation[4] was most recently been presented amongst others at the June meeting of the CCU. Individual SUNAMCO members have also participated in related discussions of this issue in a number of fora, including within the Metre Convention, for instance, the Consultative Committees for Mass (CCM) for Electricity & Magnetism (CCEM) as well as CODATA.

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[2] http://www-v2.sp.se/metrology/IUPAP_SUNAMCO/IUPAP%20SUNAMCO%20Commission_files/IUPAP_Red_book_1987/introduction_red_book_iupap_sunamco_1987.htm

[3] http://www.iupac.org/publications/analytical_compendium/

[4] IUPAP SUNAMCO 2007 "IUPAP recommendation on possible redefinitions of the kilogram, ampere, kelvin, and mole"

Nanoscience and Nanotechnology

SUNAMCO has raised the issue of possible activities in IUPAP in the rapidly expanding area of international standardisation in the **nanotechnologies and nanoscience**. Most recently, we are collaborating with ISO (through their nanostandardisation TC 229) in the promotion of the following recommendation:

"ISO Technical Committee 229, Nanotechnologies, welcomes and encourages researchers in the field to participate actively in the Working Groups (Nomenclature and Terminology, Measurement and Characterization, and Environment, Health and Safety) by providing their expertise. The ISO TC229 Roadmap of Activities lays out the needs and priority areas for standardization in nanotechnologies anticipated over the next several years. Pre-normative and pre-competitive research efforts are clearly needed in physics, chemistry, biology, and engineering sciences, and hopefully Member Nations will encourage and support work proposals aimed to contribute to this important International effort."

Conferences, medals and other activities

In addition, IUPAP SUNAMCO activities have also included the sponsorship, via IUPAP, of conferences such as the International Conference on Exotic Nuclei and Atomic Masses (ENAM'08), September 7-13, 2008 Mazurian Lakes, POLAND, and the award of SUNAMCO medals – details may be found on the SUNAMCO website[5].

Due to funding restrictions, I am unfortunately unable to attend the Turin meeting.

I hope your meeting will be successful.

Sincerely

Adj prof Leslie R Pendrill

IUPAP C2 SUNAMCO Chair

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[5] <http://www.sp.se/metrology/IUPAP_SUNAMCO/IUPAP_SUNAMCO_Commission.htm>